UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

<u>Ex parte</u> GERARD BRIAND, JUAN MORONTA and ALAIN VERDIER
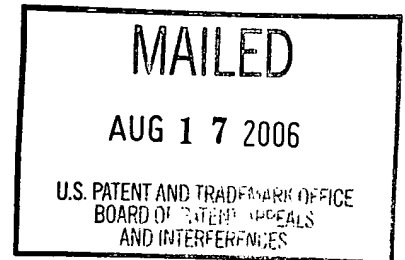

Appeal No. 2006-1240
Application No. 10/075,839

ON BRIEF

MAILED

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U.S. PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

Before JERRY SMITH, BLANKENSHIP, and SAADAT, <u>Administrative Patent Judges</u>.

SAADAT, <u>Administrative Patent Judge</u>.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1-14.[1]

We reverse.

BACKGROUND

Appellants' invention is directed to a method and apparatus for detecting the reliability of a field of movement vectors of one image in a sequence of video images. According to Appellants,

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[1] Claims 15 and 16, which have been added during the prosecution, appear to have been inadvertently omitted from the rejected claims.

since a movement-vectors field is temporally uniform over a video

sequence and undergoes very little time-domain variation, detecting

instability in the time-domain suggests unreliable movement-vectors

field (specification, paragraph bridging pages 1-2). In order to

detect the reliability of a field of movement vectors, Appellants

provide for a process that includes comparing the number of

occurrences of the majority of vectors over two successive images

and deciding on reliability on the basis of whether this measure

lies within a predetermined bracket (specification, page 2).

Representative independent claim 1 is reproduced below:

1. Method of detecting the reliability of a field of movement
vectors of one image in a sequence of video images, characterized
in that it includes a stage of calculating a stability parameter
Det_Stab(t) for the field, on the basis of a comparison (4), over
two successive images, of the number of occurrences of the majority
vectors of the movement-vectors fields of each of these images, a
field being defined as stable if the variation in the number of
occurrences lies within a predefined bracket, and a stage of
deciding on reliability (7) on the basis of this stability
parameter.

The Examiner relies on the following references in rejecting

the claims:

Avis et al. (Avis)	4,864,398	Sep. 5, 1989
Zhu	6,462,791	Oct. 8, 2002 (filed Jun. 30, 1997)

Claims 1-3, 8, 9, and 11-14 stand rejected under 35 U.S.C.
§ 102(e) as being anticipated by Zhu.

Claims 4-7, and 10 stand rejected under 35 U.S.C. § 103(a) as
being unpatentable over Zhu and Avis.

We make reference to the brief and answer for the respective
positions of Appellants and the Examiner.

OPINION

The main point of contention is based on whether the claimed
comparison over two successive images of the number of occurrences
of the majority vectors is the same as the comparison of each
motion vector with the best vector of Zhu. The Examiner equates
the claimed step of defining the stability of the fields as Step
S570 of Zhu (Figure 8) and asserts that the decision is based on a
stability parameter from the comparison step S330 (Figure 6) which
shows comparing the number of occurrences as the majority voting
process with a "THRESHOLD" value (answer, page 3).

Appellants argue that Figure 5 of Zhu relates to a motion
vector field of one image and is not the same as the claimed
comparing the number of occurrences of majority vectors within two
successive images (brief, page 4). Appellants further contrast
the motion vectors in Figure 5 of Zhu as having a single best
motion orientation per region R (col. 4, lines 51-60) which is

3

used for comparison with each motion vector of the region (id.).

Appellants further assert that Zhu, in fact, compares each motion

vector in a region with the best matching vector so that the motion

vector may be adjusted accordingly (brief, page 4).

In response to Appellants' arguments, the Examiner relies on

Figure 5 of Zhu and argues that element 225 counts the number of

the majority vectors (col. 5, lines 9-55) through a majority voting

process, which is shown as arrows or dots, in case they are ignored

(answer, page 5). The Examiner further argues that, similar to

Appellants' specification (page 9, lines 20-21), the stability

parameter is a binary setting of 1 or 0 which is set as 0 or V_{best}

on the basis of the comparison (id.).

Initially, we note that a rejection for anticipation under

section 102 requires that the four corners of a single prior art

document describe every element of the claimed invention, either

expressly or inherently, such that a person of ordinary skill in

the art could practice the invention without undue experimentation.

See Atlas Powder Co. v. Ireco Inc., 190 F.3d 1342, 1347, 51 USPQ2d

1943, 1947 (Fed. Cir. 1999); In re Paulsen, 30 F.3d 1475, 1478-79,

31 USPQ2d 1671, 1673 (Fed. Cir. 1994). However, rejections based

on § 102 must rest on a factual basis wherein the burden of proof

is placed "on the Patent Office which requires it to produce the

factual basis for its rejection of an application under sections

102 and 103." In re Piasecki, 745 F.2d 1468, 1471-72, 223 USPQ

785, 787-88 (Fed. Cir. 1984). The examiner may not, because of

doubt that the invention is patentable, resort to speculation,

unfounded assumption or hindsight reconstruction to supply

deficiencies in the factual basis for the rejection. See In re

Warner, 379 F.2d at 1017, 154 USPQ at 178 (CCPA 1967).

After a review of Zhu, we disagree with the Examiner that the

process depicted in Figures 6-8 results in defining a stable field

based on the variation in the number of occurrences being within a

predefined bracket and based on a comparison of the number of

occurrences over two successive images. Zhu in col. 4, lines 32-37

states:

> Majority Voter 225 scans through all the motion vectors in
> the region R to pick the motion vector that is the most
> representative in the region R. This process is described in
> detail below. Such a motion vector is referred to as the
> best matching vector V_{best}.

Additionally, Zhu describes that this best matching vector

is obtained by taking the average of all the orientation angles

and the average of the magnitudes of all the motion vectors in

region R which, in turn, is compared with all the other vectors V_i

(col. 5, lines 10-18). Therefore, although some comparison of

the number of occurrences of the majority vector for obtaining

the best matching vector over two successive blocks or regions R is performed, it is done after the decision step S530 (Figure 8) wherein the absolute difference between the motion vector and the vector profile is compared with a threshold (col. 6, lines 22-32).

There is nothing in Zhu to indicate that any stability decision is made based on whether the variation in the number of occurrences lies within a predefined bracket after the number of occurrences is compared. The closest Zhu comes to this comparison is by the majority voting process which takes place after a comparison with the threshold value determines the best matching vector (Figure 6; col. 5, lines 37-55). Therefore, we agree with Appellants (brief, page 5) that the absence of the specific order of claimed process steps in the reference indicates that Zhu is not concerned with transmitting a stability parameter by determining the variation in the number of occurrences after those numbers over two successive images are compared.

We note that independent claim 11 also requires means for performing similar steps which are absent in Zhu. As the references cannot anticipate any of independent claims 1 and 11, we do not sustain the 35 U.S.C. § 102 rejection of claims 1 and 11, as well as claims 2, 3, 8, 9 and 12-14 dependent thereon over Zhu.

With respect to the rejection of the remaining claims, we note that the Examiner relies on Avis for additional features claimed in the other dependent claims. However, the Examiner has not pointed to any convincing rationale in modifying Avis in order to overcome the deficiencies of Zhu as discussed above. Accordingly, we do not sustain the 35 U.S.C. § 103 rejection of claims 4-7 and 10 over Zhu and Avis.

<div align="center">CONCLUSION</div>

In view of the foregoing, the decision of the Examiner rejecting claims 1-3, 8, 9 and 11-14 under 35 U.S.C. § 102 and rejecting claims 4-7 and 10 under 35 U.S.C. § 103 is reversed.

<div align="center">REVERSED</div>

JERRY SMITH   )
Administrative Patent Judge   )
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) BOARD OF PATENT
HOWARD B. BLANKENSHIP   )   APPEALS
Administrative Patent Judge   )   AND
) INTERFERENCES
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MAHSHID D. SAADAT   )
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